

AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

1. Amend paragraph [0005] as follows:

Then, a die bonding film (die attach film or the like) 2 and a dicing tape 3 are sequentially ~~stack~~ stuck to the back surface 1b of the semiconductor wafer 1 (Fig. 18C). The dicing tape 3 is provided in a tensioned state on a wafer ring 4. Then, the semiconductor wafer 1 is mechanically cut by a blade 5 or the like into individual semiconductor elements 6, 6 At this time, the die bonding film 2 is also cut off to fabricate the semiconductor elements 6 to which the die bonding film 2 is ~~stack~~ stuck (Fig. 18D). The dicing tape 3 is partly cut from its front surface side so as to keep holding the semiconductor elements 6.

2. Amend paragraph [0008] as follows:

The picked semiconductor element 6 is adhered to various types of ~~envelops~~ envelopes such as a lead frame and a substrate. Lately, the thinned semiconductor elements 6 are stacked to have a multiple ~~layer~~ layers so to improve a packing density. To form the multiple ~~layer~~ layers, the upper semiconductor element 6 is occasionally stacked on the lower semiconductor element 6 in such a way that the upper one protrudes from the outside shape of the lower one as shown in, for example, Fig. 20. If the back surface of the semiconductor element 6 has chippings, the chippings are expanded by a load applied during the wiring bonding, possibly resulting in cracking of the semiconductor element 6.

3. Amend paragraph [0010] as follows:

As described above, the conventional semiconductor wafer dicing process cuts the die bonding film, which is ~~stack~~ stuck to the back surface of the semiconductor wafer, together with

the semiconductor wafer. Therefore, the die bonding film causes the cutting blade to clog, resulting in degradation of its sharpness. Thus, large chippings tend to be produced in the back surface of the semiconductor element. And, the large chippings become a cause of defects in the semiconductor element. Especially, the chippings formed in the back surface of the thin semiconductor element tend to reach the element region and tend to expand in the following pickup process and packaging process. As a result, a failure incidence rate of the semiconductor element is increased.

4. Amend paragraph [0013] as follows:

A manufacturing apparatus of a semiconductor device according to one embodiment of the invention comprises a pickup section for picking up a sectioned semiconductor element from a semiconductor wafer which has sectioned semiconductor elements being held by a holding member; film sticking section for sticking an element adhesive film, which is sectioned according to the shape of the semiconductor element, to the back surface of the picked-up semiconductor element, and an element adhesion section for adhering the semiconductor element, to which the element adhesive film is ~~stack~~ stuck, to a semiconductor device forming base material.

5. Amend paragraph [0035] as follows:

According to one aspect of the semiconductor device manufacturing method and the semiconductor manufacturing apparatus of the present invention, a semiconductor wafer having an element region formed on its surface is cut to form individual sectioned semiconductor elements. These sectioned semiconductor elements are held by a holding member. Then, each of the semiconductor elements is picked up from the holding member, and the element adhesive

film sectioned according to the shape of the semiconductor element is ~~stack~~ stuck to the back surface of the semiconductor element. Then, the element adhesive film ~~stack~~ stuck to the back surface of the semiconductor element is used to adhere the semiconductor element to a semiconductor device forming base material.

6. Amend paragraph [0037] as follows:

According to one aspect of the invention, semiconductor elements are sectioned from a semiconductor wafer, then the element adhesive tape which is sectioned according to the element shape is ~~stack~~ stuck to the back surface of each semiconductor element. Specifically, when the semiconductor wafer is subject to dicing, the element adhesive tape such as a die attach film is not cut off. Thus, chipping can be prevented from occurring in the back surface of the element in the dicing process. Therefore, a failure incidence rate of the semiconductor element in the semiconductor wafer dicing process and also a pickup process and a die bonding process after that can be lowered substantially.

7. Amend paragraph [0042] as follows:

The semiconductor fabrication apparatus according to another embodiment of the invention is provided with a pickup section which has an adsorption collet for holding the semiconductor element and a push-up mechanism for pushing up the back surface of the semiconductor element being held by the adsorption collet to separate it from the holding member. The adsorption collet of this embodiment is made of, for example, a porous metal. The adsorption collet may be formed of porous ceramics or the like. Besides, according to another embodiment, the semiconductor manufacturing apparatus has a film separation section for

separating a protective film formed on the back surface of the element adhesive film ~~stack~~ stuck to the semiconductor element.

8. Amend paragraph [0045] as follows:

Then, a dicing tape is ~~stack~~ stuck as the holding tape 22 to the back surface 24b of the ground and polished semiconductor wafer 24. The dicing tape 22 is provided in a tensioned state on the wafer ring 23. Then, the semiconductor wafer 24 is mechanically cut by a blade 25 or the like to produce individual sectioned semiconductor elements 21 as shown in Fig. 3C. Thus, the semiconductor wafer 16 having the sectioned semiconductor elements 21 is fabricated while the semiconductor elements 21 are held by the holding tape 22.

9. Amend paragraph [0050] as follows:

Then, the holding tape 22 is ~~stack~~ stuck as a second holding member to the back surface of the sectioned semiconductor elements 21 as shown in Fig. 4C, and the surface protective tape 27 is separated. A pickup tape or the like is used for the holding tape 22. Thus, the semiconductor wafer 16 which has the sectioned semiconductor elements 21 is fabricated while the semiconductor elements 21 are held by the holding tape 22. By previously dicing the semiconductor wafer 24, the occurrence of chippings in the back surface of the semiconductor element 21 can be further suppressed. Therefore, it becomes possible to obtain the semiconductor elements 21 which are substantially free from chippings.

10. Amend paragraph [0051] as follows:

The above-described semiconductor wafer 16 having the sectioned semiconductor elements 21 may be ~~stack~~ stuck instead of the holding tape 22 a holding table for holding the

semiconductor elements 21 by vacuum attraction, for example, a holding table having an adsorption section made of a porous material which is separated into adsorption areas of two blocks or more. The adsorption areas of such a holding table are mounted according to a formed row of the semiconductor elements. Each adsorption area has two vacuum exhaust systems, namely a first vacuum exhaust system for adsorption holding the semiconductor wafer 16 until the surface protective tape 27 is separated and a second vacuum exhaust system for adsorption holding the semiconductor elements 21 from which the surface protective tape 27 is separated, and these two vacuum exhaust systems are selectively used. The second vacuum exhaust system is set to enable pickup of the semiconductor element 21.

11. Amend paragraph [0065] as follows:

The semiconductor element 21, to which the element adhesive film 47 is ~~staek~~ stuck, is detected again for its position by the detector, corrected its position and sent to the element adhesion section 14 while being held under attraction by a second adsorption collet 51 as shown in Fig. 6E and Fig. 7E. The second adhesion collet 51 is mounted on the leading end of the moving mechanism of the element adhesion section 14, and its specific configuration is the same as that of the first adsorption collet 31. The first adsorption collet 31 only may be used to move the semiconductor element 21 from the pickup section 12 to the element adhesion section 14.

12. Amend paragraph [0066] as follows:

At the element adhesion section 14, the semiconductor element 21, to which the element adhesive film 47 is ~~staek~~ stuck, is adhered to, for example, a lead frame, a wiring substrate, a radiating substrate or other various types of envelopes or a semiconductor element which is adhered to the substrate when it is multilayered. For example, as shown in Fig. 11, the

semiconductor element 21 held by the second adsorption collet 51 is sent to a prescribed position on a wiring substrate 52 and adhered to the wiring substrate 52 by applying a load to the element adhesive film 47. The loads at the film sticking section 13 and the element adhesion section 14 are adequately controlled in the respective stages. Then, the terminals of the semiconductor element 21 and the wiring substrate 52 are connected by bonding wires, and they are sent to a prescribed packaging process to fabricate a semiconductor device.

13. Amend paragraph [0068] as follows:

The multiple layer of the semiconductor elements 21 is not limited to the aspect shown in Fig. 12, but when the upper semiconductor element 21 is small or the upper and lower semiconductor elements 21 have the same shape and ~~stacked~~ are stuck in the same direction as shown in Fig. 13, various ~~stacking~~ sticking forms can be applied. In any case, it is possible to prevent any defect from occurring in the semiconductor element 21. Besides, the semiconductor element 21 which has the element adhesive film 47 ~~stack~~ stuck to its back surface may be temporarily moved to a tray 53 and adhered to a substrate or the like as shown in, for example, Fig. 14.

14. Amend paragraph [0070] as follows:

The element adhesive film includes a type which is adhered to the semiconductor element by its adhesive layer and has a protective film adhered to the whole surface of the element adhesive film. When this element adhesive film is used, the film sticking section 13 having a protective film separation section 61 is applied as shown in Fig. 15. The protective film separation section 61 has an adhesive tape 62 for separating the protective film. The semiconductor element 21, to which the element adhesive film 47 is ~~stack~~ stuck, is temporarily

pressed against the adhesive tape 62 to separate the protective film 63 from the back surface by the adhesive tape 62 and is sent to the element adhesion section 14.